3 Amps. Switch-Mode UBEC

1. Why do you need to use UBEC?

The UBEC is a switch-mode DC regulator separated from ESC (ESC---Electronic Speed Controller for brushless motor), it will take high-voltage (5.5V-23V) power from your battery pack and convert it to a consistent safe voltage for your receiver, gyro and servos.

If you are using a speed controller with a built-in BEC, it will very likely have only a limited ability to supply power to your receive and servos without overheating. If you have a relatively high-voltage battery pack or have heavy servo loads, you should consult the ESC specifications to determine what the stated recommendations or limitations are. In general, if you are using a 4S Lithium pack, or more than a 12-cells Nickel based pack, you should consider using the UBEC. In such a case, the built-in BEC of ESC only support 2 servos, so it is not suitable for RC helicopter and big aircraft.

2. Specification:

2.1. **Output:** 5V/3A and 6V/3A switchable

2.2. **Ripple:** <50mVp-p(@2A/12V)

2.3. **Input:** 5.5V-23V (2-5S lithium battery pack, 5-15 cells NiMh / NiCd battery pack)

2.4. **Size:** 41.6mm*16.6mm*7.0mm (length*width*height)

2.5. **Weight:** 6g(input and output cables not included); 9g(cables included)

3. Features:

3.1. The UBEC is an advanced switching regulator, provides over-current and over-heat protection function, and the witching frequency is 300KHz.The max efficiency of this chip is 92%

3.2. The smallest size and the lightest weight.

3.3. Compare linear BEC with switch-mode BEC: When using a lithium battery pack more than 3s, a switch-mode BEC has much higher efficiency than linear BEC.

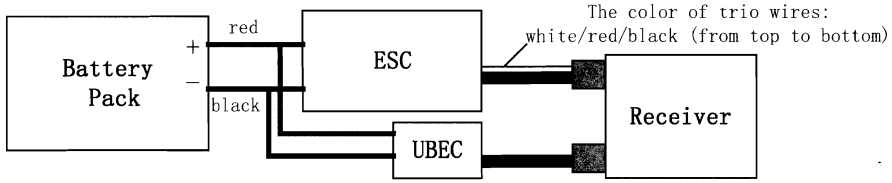
- For a traditional linear BEC, For example, a 4s lithium battery pack has a typical voltage of 14.8V, in order to let BEC output 5V/1A, the current flow into BEC is at least 1A, so the power on BEC is 14.8V* 1A=14.8W. But the useful output power is only 5V*1A=5W, so the efficiency of BEC is just 5W/14.8W=33.8%, the redundant power 14.8W-5W=9.8W changes to heat, which makes the BEC very hot.
- For a switch-mode BEC in the above case, in order to let BEC output 5V/1A, the current flow into BEC is only 0.38A (actual test data), so the power on BEC is 14.8V* 0.38V=5.6W, and the efficiency of BEC is 5W/5.6W=89.3%.

3.4. Don't worry about the polarity of battery pack, if the polarity is not correct, the UBEC can't work, but it will not be destroyed. What you need to do is just swap the battery pack polarity.

4. How to use UBEC:

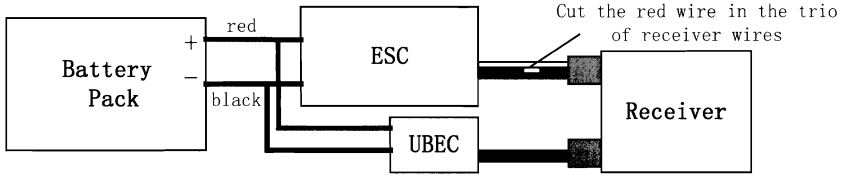
4.1. When ESC HAS NOT BEC function

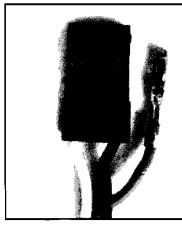
No change is needed for ESC, just connect the input cables of UBEC with the battery, and plug the UBEC 's output cable (connector) into one spare channel of receiver.



4.2. When ESC HAS BEC function

You must disable the BEC function of ESC, i.e. you must first cut the red wire in the trio of receiver wires. Simply use a pair of wire cutters to remove a short section of the red wire near the receiver connector, and insulate the cut wire with a bit of electrical tape.





***Suggestion**: Use a sharp screwdriver to take the red cable out from the BEC connector, and then insulate it with a bit of electrical tape for further use*